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ABSTRACT

This paper attempts to clarify some of the issues raised in the author's earlier paper, "A Theoretical Perspective on the Relationship between Bilingualism and Thought" (Working Papers on Bilingualism, No. 1), as a response to Gerald Neufeld's critique, which appeared in No. 2 of the same series. The present paper argues that Neufeld mistakenly imputes to the first article certain beliefs regarding cognitive flexibility, the "switching hypothesis" and cultural stimulation. In the original paper these aspects of some bilingual learning situations were discussed purely as examples of possible non-linguistic explanatory factors for the positive effects of bilingualism on cognition that have been observed. The validity or lack of validity of these factors were not under examination in the original paper. The present paper also includes a table containing a summary of the observed effects of bilingualism on cognition and the suggested explanations of these effects. (Author/DB)

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Bilingual Cognition: A Reply to Neufeld

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I feel a brief clarification of some of the issues raised in my paper "A Theoretical Perspective on the Relationship between Bilingualism and Thought" (Working Papers on Bilingualism, no. 1) is in order in view of Gerald Neufeld's critique in Working Papers on Bilingualism, no. 2. I shall first clarify the purpose of the paper and then comment on some of Neufeld's specific misinterpretations.

My purpose in considering the question of bilingualism and thought was not to offer arguments to show that bilinguals are more cognitively flexible than unilinguals nor to review recent research on this issue, but to consider the logical adequacy of a certain theoretical position. I attempted to show that predictions regarding the influence of bilingualism on thought are not wholly dependent on the way the language-thought issue is resolved. In other words, non-linguistic factors could <u>theoretically</u> exert a differential influence on the cognitive development of bilingual and unilingual children. In the paper I noted several such non-linguistic factors (cultural stimulation (Peal and Lambert, 1962); greater degree of social interaction involved in learning two languages as opposed to one (Liedke and Nelson, 1968); switching between languages (Peal and Lambert, 1962); Balkan, 1970; Landry, 1974)) which have been proposed by various researchers as <u>possible</u> explanatory factors for the positive effects of bilingualism on cognition which they observed in their studies. The purpose of mentioning these factors was not, as Neufeld assumes, to argue for their validity, but to point out that they are relevant to a theoretical analysis of bilingualism and thought.

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This reminder is necessary since it has too often been implicitly assumed that only the language-thought issue is relevant to the question of bilingualism and thought (e.g., Macnamara, 1970). The theoretical implications of the fact that bilingualism could affect cognitive development in ways which are not directly mediated by language are worth noting. The first implication is that Macnamara's

(1970) theoretical analysis of bilingualism and thought is logically inadequate since it takes into account only linguistic features of the bilingual situation. Neufeld misses the point when he says that Macnamara is cognizant of the extent of or lack of cultural transfer. Of course he is. What Macnamara appears not to be cognizant of is the fact that the potential importance of this and other non-linguistic factors (not all "cultural") invalidates his conclusion that because language is less than crucial in the development of cognition therefore bilingualism is unlikely to exert any important influence either. In the original paper I argued that Macnamara's conclusion does not follow even when linguistic factors only are taken into account.

Secondly, the existence of non-linguistic explanatory factors means that research on the effects of bilingualism on cognitive processes does not necessarily carry any implications for the language-thought issue. Thus, Bain's (1974) attempt to integrate the views of Piaget (1966) and Vygotsky (1962) on the language-thought issue by investigating the effects of bilingualism on cognitive development misses the point since these effects are not necessarily mediated by language.

Let me reiterate that in discussing linguistic and non-linguistic explanatory factors I am not suggesting that any or all of these are valid; rather, the purpose of the discussion is to draw out the implications of the qualitative difference between these two types of explanatory phenomena for theoretical analyses of bilingualism and thought. I submit that the conclusions reached by Macnamara (1970) and Bain (1974), though very different, are both logically inadequate precisely because they fail to take account of this distinction.

Neufeld begins his paper by stating that " ...Cummins offered some arguments in support of the popular hypothesis that bilinguals may well be more cognitively flexible than their monolingual counterparts." He goes on to say that the most serious problem in the paper is that the impression is conveyed that nearly all recent studies exploring the effects of bilingualism on cognitive development "strongly support the view that bilinguals excel in problem solving, concept learning, abstract reasoning, and general academic achievement." As pointed out

above I had no intention of reviewing recent research, still less attempting to show that bilinguals are more cognitively flexible than unilinguals. However, since the interpretation of recent research studies and my own views on cognitive "flexibility" in bilinguals have been raised by Neufeld, a clarification is in order.

Table 1 summarizes the observed effects of bilingualism on cognition and the suggested explanations of these effects since the Peal and Lambert study in 1962. Unfortunately, Neufeld's discussion of previous research extends only to studies conducted in Montreal and Ottawa. His conviction that bilingualism does not lead to intellectual advantages might have been less assured had he been aware of the bulk of evidence summarized in Table 1. The fact, however, that recent studies of bilingualism and cognition have reported higher levels of cognitive performance in bilinguals does not, of course, preclude the possibility that in some bilingual learning situations becoming bilingual might have negative consequences for mental development or academic achievement (see, for example, Macnamara's (1966) research on bilingualism and scholastic achievement). Macnamara (1974), Neufeld (1974) and Cummins (1974) have all noted that bilingual research results cannot be generalized outside the specific bilingual learning situation in which the research took place. However, given these qualifications, the research results outlined in Table 1 clearly indicate that when a certain level of balance has been achieved between the two languages, bilingualism can, in some bilingual learning situations, accelerate aspects of cognitive development. While individual studies in Table 1 may be criticized on various points, such a consistent body of evidence cannot be lightly dismissed by any serious researcher.

Neufeld completely misrepresents my views on cognitive "flexibility" in bilinguals and on the "switching hypothesis", i.e., that the habit of constantly switching from one language to another may lead to greater cognitive flexibility in bilinguals (Peal and Lambert, 1962; Balkan, 1970; Landry, 1974). Far from arguing in support of the hypothesis that bilinguals are more cognitively flexible than unilinguals, I have elsewhere (Cummins, 1974) argued that the whole notion of cognitive flexibility in bilinguals is rife with conceptual confusion. In addition, the findings of a recent research study (Cummins and Gulutsan,

TABLE 1

Summary of the Observed Effects of Bilingualism on Cognition and the Suggested Explanations of these Effects

EFFECTS[1]	EXPLANATIONS
General Reasoning:	
1) General reasoning ('g') (Peal and Lambert, 1962)	a) faster separation of sound from referent (Peal and Lambert, 1962) (empirically supported by Ianco-Worrall, 1972).
2) Concept formation (Liedke and Nelson, 1968)	b) habitual switching between languages (Peal and Lambert, 1962)
3) Rule discovery (Bain, 1970)	c) wider range of experineces due to participation in two cultures (Peal and Lambert, 1962)
4) General reasoning ('g') (Cummins and Gulutsan, 1974 a)	d) greater degree of social interaction (Liedke and Nelson, 1968).
Verbal Abilities:	
1) Verbal intelligence (Peal and Lambert, 1962)	a) overlap of French and English vocabulary (Peal and Lambert, 1962)
2) Verbal intelligence (Kittell, 1963)	b) transfer across and comparison of languages (Lambert and Tucker, 1973)
3) Psycholinguistic abilities (Casserly and Edwards, 1973)	
4) Verbal intelligence (Lambert and Tucker, 1973)	
5) Verbal intelligence (Cummins and Gulutsan, 1974 a)	
"Flexibility" - Divergence:	
1) "Flexibility" (Balkan, 1970)	a) habitual switching between languages (Balkan, 1970; Landry, 1974)
2) Divergent thinking (Landry, 1974)	(not empirically supported by Cummins and Gulutsan, 1974b)
3) Divergent thinking (Cummins and Gulutsan, 1974 a)	

[1] On all of the measures shown in Table 1 bilinguals performed at a higher level than a control group of unilinguals.

(1974-6) have cast serious doubt on the validity of the switching hypothesis.

While there is some evidence that bilinguals may be more cognitively flexible (in some sense of the word) than unilinguals (see Table 1), a more precise definition is needed of what this flexibility entails. For example, how does "flexibility" as used by Balkan (1970) (performance on perceptual and verbal "set changing" tests) relate to Peal and Lambert's (1962) "flexibility" (performance on tests of general reasoning) or to Landry's "divergent thinking" (performance on the Torrance tests of creative thinking)? The term "flexibility" is used by the respective authors to describe each of these vastly different cognitive performance and in each case the switching hypothesis is invoked as an explanatory construct. The extent of the conceptual confusion can be seen in Landry's comments on Peal and Lambert's study. In discussing Peal and Lambert's results Landry states that the difference between the bilingual and unilingual groups "was precisely on the factor of flexibility, a divergent thinking task (1974, p. 10)." This is a gross misinterpretation of Peal and Lambert's findings. Peal and Lambert's theoretical speculations might lead one to hypothesize a positive correlation between bilingualism and either creativity or cognitive flexibility, but there is nothing in their empirical data which supports such an hypothesis. In addition, one must ask how the "cognitive flexibility" discussed by Peal and Lambert, Balkan, and Landry relates to the attitudinal flexibility reported in several of Lambert's studies. Unless this type of question is answered the term "flexibility" will be so broad and ill-defined as to be useless for describing or accounting for differences between unilinguals and bilinguals.

The validity of the "switching hypothesis" has been called into question by Cummins and Gulutsan (1974 b) who found that bilingual and unilingual groups matched for sex, SES and age, did not differ in ability to extinguish a set as measured by the Uznadze haptic illusion. If bilinguals were in fact more "adaptable" or "willing to change" (Landry, 1974, p. 13) as a result of alternating languages this should have been evident in the haptic set test which requires subjects to change an established set or pattern of response. Thus, it should not

be uncritically assumed that switching from one language to another has any consequences for the cognitive functioning of bilinguals.

In summary, by misunderstanding the purpose of my paper which was addressed to the logical adequacy of Macnamara's (1970) views on bilingualism and thought, Neufeld has imputed to me various beliefs regarding cognitive flexibility, the switching hypothesis, cultural stimulation etc. which I do not hold. In my paper these aspects of some bilingual learning situations were discussed purely as examples of possible non-linguistic explanatory factors with no consideration of their validity or lack of validity. The validity of these hypotheses is dependent on further empirical investigation. As is clear from the discussion above my views are very different from those attacked by Neufeld.

It is hoped that the summary of recent research presented in Table 1 will lead to discussions which are better informed with respect to the phenomena which require explanation in the area of bilingual cognition. Also, instead of wooly armchair theorizing about possible explanations of cognitive differences between bilinguals and unilinguals, we need both empirical research designed to test the validity of suggested explanations and rigourous conceptual analysis of notions such as "flexibility" which are widely used by investigators in this area.

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